TANKS IN THE EASTER OFFENSIVE 1972

The Vietnam War's great conventional clash

WILLIAM E. HIESTAND ILLUSTRATED BY IRENE CANO RODRÍGUEZ

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NEW VANGUARD 303

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INTRODUCTION

The Vietnam conflict is largely remembered for jungle operations against elusive guerillas. By 1972, however, American ground forces had largely withdrawn, and Hanoi launched a massive multi-divisional conventional attack aimed at smashing its South Vietnamese opponents. The ensuing fighting was some of the most intense and brutal of the Cold War, and for the first time both sides employed significant numbers of tanks and armored fighting vehicles. This book surveys the development, organization, and tactical doctrine of Saigon's and Hanoi's mechanized forces, as well as the characteristics of the major tanks and armored fighting vehicles used during the offensive. During 1972, there were head-to-head engagements between some of the leading tanks of the era, as well as the employment of new technologies including wire-guided antitank missiles (ATGMs). The offensive yielded lessons on armored warfare underscored in the more famous clash of Arab and Israeli tank forces in the ensuing October 1973 war.

THE TANKS, DOCTRINE, AND ORGANIZATION

Army of the Republic of Vietnam

The evolution of the ARVN armored force

Saigon's military contained an armored component from the beginning. French forces fighting to retain their colonial possessions in Indochina established an armor training facility for their Vietnamese allies in 1950. After the French defeat, the new South Vietnamese military inherited French armored equipment, organizational concepts, and military terminology. During the early 1960s, each of the four Army of the Republic of Vietnam (ARVN) corps[1] controlled a battalion-sized armored cavalry squadron equipped with M24 Chaffee light tanks, M8 scout cars, and M3 halftracks.

ARVN armor was typically relegated to static defense and route security operations in the years before 1968. South Vietnamese leaders tended to keep tank units near their headquarters as "palace guards." In addition, due to the turbulent nature of southern politics, armored forces proved to be ideal forces for launching *coups d'état*. As a result, their officers were selected due to political connections rather than military ability. ARVN armored forces at the time were often disparagingly referred to as "coup troops," and their M24s dubbed "voting machines." Ironically, one of the few major actions by ARVN armored units was between M24s of rival factions and left several tanks of the presidential guard in flames during the November 1963 overthrow of President Ngo Dinh Diem. US advisors to ARVN armored forces struggled to instill an offensive ethos and improve tactical expertise during these years, but were impressed by the ingenuity of its maintenance personnel, who were masters of improvisation and able to keep up to 90 percent of their tanks and AFVs operational despite an inefficient supply system and chronic shortages of spare parts. The large-scale insertion of US ground forces in 1965 led to American troops taking over all major operations, however, further confining southern units to secondary tasks.

Growth of the ARVN armored force			
Year	Armored cavalry squadrons (ACS) formed	Armored brigade HQs formed	Tank squadrons formed
1954	3rd		
1956	1st, 2nd, 4th		
1965	5th, 6th, 7th, 8th		
1966	9th, 10th		
1968	11th, 12th		
1969	14th, 15th, 16th	1st, 4th	
1970	17th, 18th 19th	3rd	
1971		2nd	20th
1972			21st, 22nd
Total Raised	**18**	**4**	**3**

During these years, more modern US equipment, including M113 APCs and M41A3 light tanks, arrived along with American training and organizational concepts. By 1965, the ARVN armored force had expanded to eight battalion-sized squadrons, controlling a total of five M41A3, 21 M113, and three M8 armored car companies. As the force structure expanded, each ARVN infantry division ultimately received an ACS, with other ACSs controlled by armored brigade HQs and held as corps-level reserves.

The M41A3 was the primary tank in the Army of the Republic of Vietnam's (ARVN's) inventory during the Easter Offensive. Although a capable light tank design, it was outmatched by the superior armor and firepower of Hanoi's heavier T-54s. Only the massive application of US airpower, North Vietnamese operational and tactical shortcomings, and

the ARVN's limited force of M48A3 medium tanks allowed Saigon to stem the offensive. (Author's Collection)

The T-54 and its T-55 follow-on was the most produced tank in history and the iconic Eastern Bloc tank of the Cold War era. When first fielded, the T-54 was an excellent combination of mobility, armor, and firepower, but in 1972 it was outgunned by ARVN M48A3s in several engagements during the Easter Offensive. (Getty Images)

The 1968 nationwide *Tet* Offensive forced ARVN armored units out of their garrisons and into sudden high-intensity combat. M41A3s were particularly effective when supporting troops flushing the Viet Cong from the Saigon suburbs, usually relying on their .50cal MGs rather than 76mm guns to minimize damage to the urban landscape. After *Tet*, the United States changed its strategy in Vietnam and began drawing down US forces while strengthening the ARVN to stand on its own. As part of this Vietnamization program, additional armored cavalry squadrons were formed, yielding a total force of 18 by late 1970, accompanied by four armored brigade headquarters.

A

1. M24 Light Tank, South Vietnamese Air Force, Tan Son Nhut Airbase, 1968

The M24 was the primary French and South Vietnamese tank until replaced by M41A3 Walker Bulldogs in 1965. Some of the old M24s were retained as static pillboxes to defend facilities throughout the south. Nguyen Cao Ky, head of the Air Force in the early 1960s and Vice President to Thieu from 1967 to 1971, wanted to ensure he had a loyal armored element available in the capitol area and retained ten fully operational M24s under Air Force control as the “3rd Reconnaissance Squadron” at Tan Son Nhut Airbase near Saigon. Unlike the US Army olive drab paint usually used on ARVN vehicles, these Air Force M24s were painted in camouflage patterns. The tank here firing in defense of the base in 1968 also carries the name of a TV star of the US show *Combat* broadcast in South Vietnam at the time. The 3rd Reconnaissance Squadron remained operational in 1972, although it was not directly attacked during the Easter Offensive. Other static M24s were engaged and destroyed as the NVA overran ARVN defenses in the early days of the attack.

2. NVA T-34-85 during a training exercise, 1970

The NVA received a batch of T-34-85s from the USSR in 1959 that it used to form its first tank regiment, and employed the vehicles extensively to train its tank crews. Despite its age, the NVA sent several battalions of T-34s into the attack in 1972. Along with T-54s and PT-76s, T-34s were able to overwhelm the ARVN defenses at Tan Canh and Dak To II in the Central Highlands, although NVA armor failed in several assaults after southern forces rallied at Kontum. The T-34-85 in this plate was photographed during a 1970 training evolution and had “1945–1970” on the rear external fuel tank to commemorate the 25th anniversary of the founding of the North Vietnamese state. Like most NVA tanks during 1972, this T-34 has a star on the turret, although some crews painted over the star to improve concealment during combat operations.

In 1970, Washington determined to destroy North Vietnamese Army (NVA) logistical base areas in Cambodia to buy more time for strengthening the South Vietnamese. Nine ARVN armored cavalry squadrons participated and performed well in the joint US/ARVN attack. A year later, Saigon launched Operation *Lam Son 719* to try to repeat the performance against NVA bases in Laos, this time without US advisors. Despite initial progress by elite ARVN airborne and ranger units and elements of the 1st Armored Brigade, high command caution stalled the advance and allowed the NVA to marshal superior numbers and counterattack. ARVN M41A3s met NVA tanks for the first time in Laos, using superior crew training and tactics to outshoot the T-54s and PT-76s in several engagements.[2] Nevertheless, southern forces were ultimately forced to retreat, and, with its escape route cut, the 1st Brigade ultimately lost 54 M41A3s, 87 M113s, and 600 trucks. Over the next year, the US replaced the lost vehicles and began to form three ARVN M48A3 tank squadrons to match the T-54s.

ARVN operational doctrine and tactics

South Vietnamese officers had little experience orchestrating large-scale conventional operations and would struggle to effectively maneuver and employ their armor in 1972. To date, ARVN forces had been almost completely focused on security and small-scale counterinsurgency missions, and the attempt to control a multi-division operation in Laos without US advisors had ended with a costly retreat. Tactically, ARVN senior leaders rarely used their armor aggressively and tended to employ their tanks and AFVs in “penny packets” for route security and to stiffen scattered static defenses. The armored cavalry squadrons in the II and III Corps areas suffered particularly from these tactics during the early weeks of the 1972 offensive. There, ARVN tanks defending fire support bases were picked off by long-range Sagger ATGM fire, and several other detachments attempting to maneuver were ambushed and destroyed at close range by NVA tanks.

French units deployed to Indochina with the US tanks and AFVs they had used during World War II. The M24's good reliability and mobility made it useful for base and convoy security. Here, two M24s support infantry during Operation *Mouette* in the Hanoi region in October 1953. (Getty Images)

The best-prepared ARVN armored unit in 1972 was the newest. The M48A3-equipped 20th Tank Squadron had just finished gunnery training and tactical exercises when rushed north to meet the NVA attack across the Demilitarized Zone (DMZ). The 20th was able to defeat several NVA armored attacks with long-range gunfire and repulsed repeated assaults from both the north and west throughout April. It was, however, pinned by higher command to a linear defense in the Dong Ha area, and suffered steady attrition from NVA antitank fire.

ARVN armor organization

The primary ARVN maneuver unit was the armored cavalry squadron – a battalion-sized formation primarily composed of up-gunned M113 armored personnel carriers with a company of M41A3 light tanks. In 1972, ten of the existing armored cavalry squadrons were attached to infantry divisions, with the rest controlled by armor brigade headquarters. Each armored cavalry squadron consisted of two or three company-sized reconnaissance troops with 15 M113s each and an M41A3 troop with 17 tanks. In 1967, a troop's M113 strength was increased to 22, giving a full-strength squadron total of 66 M113s and 17 M41A3s. M125 81mm and M106 4.2in mortar

carriers and M132 flamethrowers were also a part of the table of organization, and the squadron headquarters contained a V-100 Commando armored car platoon. Armored cavalry squadrons operating in the IV Corps area were equipped with an extra M113 troop in place of the M41A3s due to the marshes and rice paddies of the Mekong Delta.

Departing French forces passed their mechanized equipment, including M24 light tanks, to their South Vietnamese clients, and the United States soon took over the support and development of the ARVN. Here, in a staged training photo, ARVN infantry and M24 tanks are overflown by South Vietnamese Air Force A-1 Skyraiders. (USAF/Wikimedia/Public Domain)

Designed to serve in conventional operations in an “armored battle taxi” role, the light and mobile M113 was soon employed by the ARVN as an improvised light tank. This M113 from the ARVN 4th Armored Cavalry Squadron is crossing a water obstacle during training in 1963. Casualties to the exposed .50cal gunners at the Battle of Ap Bac in 1963 led to the addition of armored shields, and soon M113s were up-gunned with various mixes of additional machine guns and armor shields. Most ARVN AFVs in 1972 were M113s. (US Army/Wikimedia/Public Domain)

A brigade headquarters was assigned to each corps during the Vietnamization era to improve the employment of ARVN armor. Like the US World War II armored division’s combat commands, brigade HQs consisted of commanders, staffs, and communications equipment, and were designed to control a variety of units attached for specific missions. Brigades were intended to typically control two to four assigned battalions, but ARVN senior officers tended to overload subordinates with additional units, and armored brigades could be tasked to control as many as 18.

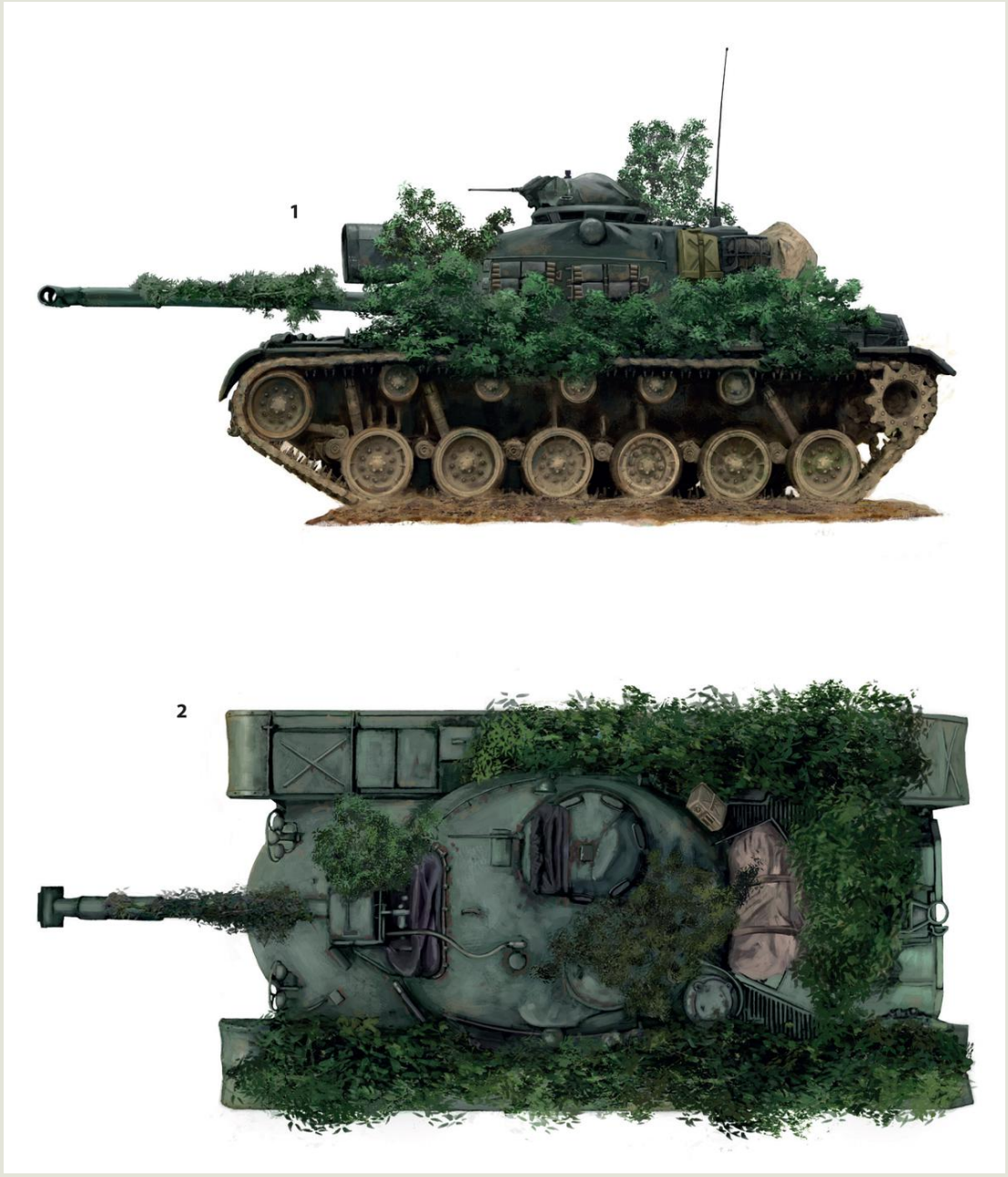
ARVN armored cavalry squadron table of organization and equipment

	M577 Command Vehicle	M578 Light Recovery Vehicle	M548 Tracked Transport	M132 flame-thrower	V-100 Armored Car	M106 Mortar Carrier (4.2)	M125 Mortar Carrier (81mm)	M113	M113/ recoilless rifle	M41A3
Squadron HQ	3	1		3	6	4		4		
Armored Assault Troop							3	16	3	
Armored Assault Troop							3	16	3	
Armored Assault Troop							3	16	3	
Tank Company			3							17

ARVN leaders' tendency to retain their tank force to guard headquarters abruptly ended in 1968 with the nationwide *Tet* Offensive. ARVN and US forces, including mechanized units, responded rapidly throughout the country to engage the communist attackers. In Saigon, M41A3 light tanks proved particularly effective, typically using their machine guns rather than 76mm main armament to minimize damage to the city. (US Army/Wikimedia/Public Domain)

The US began to form South Vietnamese medium tank units after the ARVN encountered NVA T-54s in Laos. The 20th Tank Squadron (a three-company battalion-sized unit) was formed in 1971 in the I Corps area and immediately began training on 56 M48A3 tanks. The 20th had a unique organization with an organic 270-strong company of infantry intended to provide each M48 with six tank riders to protect against enemy antitank teams. When committed to combat in 1972, these troops were instead used as replacements for tank crew losses. The 20th was fielded with inadequate maintenance assets and lacked M88 recovery vehicles and organic bridgelaying tanks when rushed into battle to meet the NVA's offensive, leading to the loss of all its vehicles during the chaotic retreat from Quang Tri in late April. Efforts were underway in early 1972 to create the 21st and 22nd M48A3 Squadrons in the II and III Corps areas, respectively, but less progress had been made forming these units when the offensive began.

B ARVN M48A3, 20th Tank Squadron, Dong Ha, April 2, 1972



The stand of the 20th Tank Squadron's M48A3s at Dong Ha in April was the most important contribution of ARVN armor to the repulse of the NVA's 1972 offensive. Newly formed, the 20th's crews had just mastered the M48A3's complex fire-control system, and when rushed to defend Dong Ha they engaged and destroyed NVA tanks at long range in several engagements. The 20th's M48A3s were painted in the standard US Army/ARVN olive drab finish, carrying a small identification number on the side. Many ARVN tanks and AFVs photographed during 1972 carried foliage as camouflage, evidently to obscure them from direct observation and fire as there was no NVA air threat. The M48A3 shown includes its xenon searchlight, which helped the 20th engage targets during the first several nights defending the river line near Dong Ha, although continuous NVA artillery shelling soon rendered the searchlights inoperable.

The ARVN armored force, March 30, 1972				
	Armored cavalry squadron	Tank squadron	Location	Superior headquarters
I Corps				
	11th		Dong Ha	1st Armored Brigade
	17th		Dong Ha	1st Armored Brigade
		20th (newly formed)	Quang Tri	1st Armored Brigade
	7th		Hue	1st Infantry Division
	4th		Chu Lai	2nd Infantry Division
	No ACS			3rd Infantry Division (newly formed)
II Corps				
	3rd		An Khe	2nd Armored Brigade
	14th		Kontum	2nd Armored Brigade
		21st (forming)	Pleiku	
	19th		Pleiku	23rd Infantry Division
	8th		Ban Me Thuot	22nd Infantry Division
III Corps				
	15th		Bien Hoa	3rd Armored Brigade
	18th		Bien Hoa	3rd Armored Brigade
		22nd (forming)	Bear Cat	3rd Armored Brigade
	1st		Duc Hoa	5th Infantry Division
	5th		Xuan Loc	18th Infantry Division
	10th		Cu Chi	25th Infantry Division
IV Corps				
	12th		Can Tho	4th Armored Brigade
	16th		Long Xuyen	4th Armored Brigade
	6th		My Tho	7th Infantry Division
	2nd		Vinh Long	9th Infantry Division
	9th		Soc Trang	21st Infantry Division

North Vietnamese Army

NVA armored force evolution

Unlike Saigon's forces, Hanoi was slow to develop and field an armored capability. During the conflict with the French, the Viet Minh grew from a guerilla force to field powerful infantry divisions, backed by an artillery and antiaircraft heavy weapons division. After the French defeat, Hanoi initially focused on antitank capabilities to defend against a possible invasion from the south, forming several battalions equipped with World War II-era Soviet 57mm and German PAK 40 75mm AT guns provided by the USSR. In 1955, Hanoi formed its first armored company using captured M24s, M8 armored cars, and M3 halftracks – the same equipment used by its ARVN opponents to the south. Four years later, the NVA formed the 202nd Armored Regiment, named for the first cadre of 202 trainees sent abroad. The 202nd was initially equipped with 35 T-34-85 medium tanks and 16 SU-76M self-propelled guns. The 203rd Armored Regiment was added in 1965, giving Hanoi a two-regiment force equipped with mixes of PT-76

light and T-54 and T-34-85 medium tanks. At the time, each regiment controlled mechanized infantry companies with BTR-50PK APCs, a reconnaissance company with BTR-40s, and a self-propelled antiaircraft gun (SPAAG) company with ZSU-57-2s and BTR-40As. The North Vietnamese also formed several independent armor companies with additional SU-76Ms and PT-76s.

ARVN armor performed well with US forces in Cambodia in 1970. ARVN M113 armament varied, and the nearer vehicle carries the M74 turret with twin .30cal machine guns and at least one unshielded M60 machine gun behind, while the second M113 has a .50cal machine gun protected by a shield. (US Army/Wikimedia/Public Domain)

With the large-scale entry of US ground forces into the conflict in 1965, NVA armor was held in the north to defend against a possible US invasion, while Hanoi concentrated on guerilla operations in the south. Communist forces used mines, recoilless rifles, and RPG-2 and RPG-7 infantry-carried antitank rocket launchers to inflict losses on US and ARVN armor, but NVA tanks very rarely operated in the south. During the 1968 Khe Sanh campaign, a force of 16 PT-76s overran the Lang Vei Special Forces camp on the Laotian border, losing six tanks in the attack. The next year, 12 PT-76s and some BTR-50PKs from the 202nd Armored Regiment attacked the Special Forces camp at Ben Het, but a US M48A3 platoon was present and knocked out several of the NVA vehicles.

In 1971, the US estimated the NVA had 50 T-34-85s, 300 PT-76s, and 50 T-54s. The first large-scale employment of NVA tanks took place during the *Lam Son 719* ARVN invasion of Laos the same year. Hanoi lost over 100 tanks repulsing the attack, some to M41A3s and the majority to air attack. Despite the losses, the NVA had overrun the ARVN firebases guarding the flanks of the main road used by southern forces, and the tankers of the cut-off 1st ARVN armored brigade had to abandon their vehicles during the ensuing retreat. Hanoi assessed that its tanks had played a major role in its first major conventional clash with southern forces.

Evolution of the North Vietnamese armored force

	Units formed	Primary AFVs
1955	Armored company	M8, M3, M24
1959	202nd Armored Regiment	T-34-85, SU-76M
1965	203rd Armored Regiment, independent companies	PT-76, T-34-85, T-54, BTR-50PK, ZSU-57-2, BTR-40A
1971–72	201st, 207th Armored Regiments, plus additional independent armored companies and battalions	T-54A, T-54B, Type 59, PT-76, Type 63, APCs, SPAAGs
1973–75	202nd, 203rd raised to brigade status; 204th, 206th, 215th, 273rd, 408th, 574th Armored Regiments join force	As above

Hanoi received SU-76M self-propelled guns from its Soviet patrons in 1959, along with T-34-85s. Hanoi appears to have confined its SU-76Ms to training tasks, and none were identified in active operations in 1972. (Author's Collection)

Encouraged by success in Laos, the NVA rapidly expanded its armored force to prepare for the 1972 offensive. More tanks were received by Hanoi

in early 1972 than in the previous seven years combined. The USSR provided additional T-54 medium tanks, including the improved B models, and PT-76 light tanks. China sent Type 59 T-54A copies and Type 63 light tanks – inspired by, but an improved version of, the PT-76. By 1972, the North's armored regiments, separate battalions, and companies contained 350 T-54/Type 59s, 200 PT-76/Type 63s, as well as 100 T34-85s. Both nations also sent APCs, including Soviet BTR-50PKs and BTR-152s and large numbers of Chinese Type 63 (YW-531) APCs. Some World War II-vintage SU-76M, SU-100, and ISU-122 self-propelled guns were also in the inventory, although they do not appear to have been employed during the 1972 offensive. Acutely aware of the threat of US air attack, the NVA received ZSU-57-2 self-propelled antiaircraft guns and modified some T-34-85s and BTR-50s to carry antiaircraft guns. The total tank force doubled within a year from eight to 16 armored battalions as new regiments and independent companies were added to the order of battle. By the beginning of what Hanoi designated the *Nguyen Hue* Offensive, the NVA was able to field over 650 tanks and 300 APCs.

NVA armored order of battle, March 30, 1972

Unit	Subordinate tank battalions	Operating area in 1972
201st Armored Regiment	171A, 171B, 297	297th Battalion in Central Highlands
202nd Mechanized Regiment	66, 198, 244, 397	Attacked across DMZ against ARVN I Corps
203rd Armored Regiment	3, 4, 512	Supported 308, 304, 324B Divisions against ARVN I Corps
26th Armored Group	20, 21	Led attack against ARVN III Corps
6th Tank Battalion		Guarded lines of communication in Laos
195th Tank Battalion		Guarded lines of communication in Laos
10th Armored School/207th Armored Regiment		In North Vietnam
510th Antiaircraft Group		Various
12 Separate Armored Companies		Various

C

1. NVA T-54A, 21st Tank Battalion, An Loc, May 1972

In addition to the more modern T-54Bs of the 20th Tank Battalion, the 26th Provisional Group had earlier T-54As in the 21st Battalion. The vehicle pictured here had received the newer starfish pattern roadwheels during modernization. Originally held in reserve, the T-54As of the 21st were sent into the climactic NVA attack on An Loc

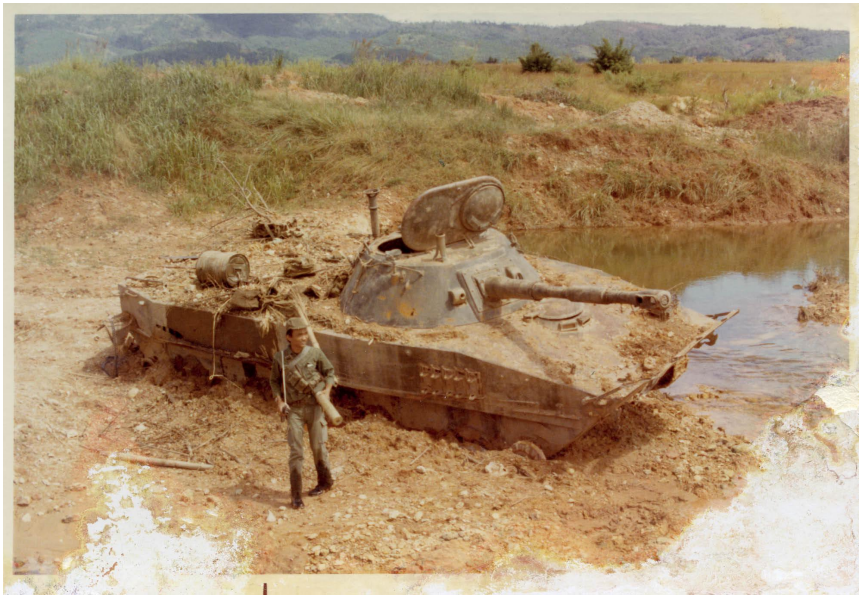
on May 11, where, like all armored attacks into An Loc and Kontum, they suffered heavy losses to US airpower and ARVN antitank defenses.

2. NVA T-54B, 20th Tank Battalion, An Loc, April 1972

The T-54B was Hanoi's most modern and capable tank in 1972. Unlike the earlier T-54A, it carried the two-axis "Tyklon" (Cyclone) stabilization system that greatly improved its ability to fire while on the move. The T-54B also had more modern infrared gear that allowed for improved night fighting, a major focus of the NVA due to its concern with enemy air attack. This vehicle features the L-2 Luna IR gun sighting equipment and associated gear. Despite its modern equipment, T-54Bs – along with the earlier T-54A/Type 59s – were consistently outshot at long range by ARVN M48A3s, and in addition lost heavily to ARVN infantry antitank systems when separated from their infantry support during attacks into the An Loc and Kontum urban areas.

NVA operational doctrine and tactics

NVA armored personnel sent abroad received Soviet training focused on large-scale tank offensives inspired by its World War II Eastern Front experiences. Hanoi realized from the first that Soviet-style massed armored tactics were impractical due to the limited numbers of tanks, difficult terrain, and US airpower. The NVA initially held its small force of tanks in the north to meet a possible US amphibious landing, and its early doctrinal approaches stressed the use of detached armored units to lead infantry attacks on enemy fortified positions to minimize casualties. Night operations and extensive use of camouflage were major NVA training themes due to the constant threat of air attack.



Some of the NVA's first experience with armored operations was through its employment of small units to secure its lines of communications through Laos. This PT-76 was bogged down and captured during operations against US-supported guerilla forces. (VA060299, Michael Ingham Collection, Vietnam Center and Sam Johnson Vietnam Archive, Texas Tech University)

Hanoi planned a more prominent role for its tank force as the US began to withdraw in 1968, a decision reinforced by its 1971 employment of armor in Laos. The arrival of large numbers of tanks from the USSR and PRC (People's Republic of China) and the sudden expansion of armored units led the NVA to rush to improve its tank doctrine and training before the 1972 offensive. NVA leaders realized their units would need to be

proficient in combined arms tactics, fully integrating tanks with its traditional infantry and artillery attacks. After an experimental exercise by the elite 308th Division using tanks against a mock ARVN defensive position in late 1971, tactical manuals and a training program were rapidly distributed to the widely scattered NVA units already in the midst of deploying and preparing for the offensive. Time was limited and units already engaged in operations to the south were especially challenged in trying to absorb the new techniques.

Armored unit organization

NVA armored regiments varied significantly in their organization and equipment. The 202nd and 203rd Regiments each contained two 38-tank battalions along with an APC battalion in 1970. After the engagement in Laos, the 202nd was reorganized into a mechanized regiment with one T-54 and one T-34-85 battalion and two mixed mechanized battalions with Chinese-provided K-63 APCs and Type 63 light tanks. The 203rd became a heavy armored regiment equipped with three tank battalions, all with T-54/Type 59s. The 297th Tank Battalion of the 201st Regiment led the attack against the ARVN II Corps with three companies of T-54s and one of T-34-85s. The NVA also continued to field numbers of independent tank battalions and companies. For the attack against An Loc, the NVA organized two T-54 tank battalions – the 20th and 21st – into the 26th Provisional Armored Group. The 33rd Independent Tank Company, completely equipped with captured ARVN and Cambodian tanks including M24s and even an AMX13, initially supported a diversionary attack against the ARVN 25th Division, and subsequently joined the 26th Group in the climactic assault on An Loc.

A Type 59 tank at the Beijing Military Museum. The Type 59 was a licensed copy of the Soviet Union's T-54A design. US and South Vietnamese accounts tend to characterize all opposing mediums in 1972 as "T-54s" as the two tanks are so similar. (Max Smith/Wikimedia/Public Domain)

The Soviet Union designed its tanks for a war with large-scale attacks by multiple echelons of mass-produced tanks and supporting AFVs operated by a massive conscript army, exploiting gaps blown in NATO defenses by nuclear strikes. In this posed photo, T-54/55 tanks maneuver past a nuclear-capable FROG rocket launcher. (Getty Images)

Notes

1 See **map** for the ARVN corps/military region areas of responsibility.

2 For more information on these actions, see Chris McNab, *Walker Bulldog vs T-54: Laos and Vietnam 1971–75,* Osprey Duel 94 (2019).

TECHNICAL FACTORS

The ARVN and NVA were equipped with tanks reflecting the design philosophies of their Cold War patrons. The USSR was heavily influenced by its experiences in the Great Patriotic War and planned to launch massive numbers of tanks in multiple echelons to break through NATO defenses. Soviet designs integrated the best possible combination of mobility, armor, and firepower into compact vehicles intended to be produced in huge numbers and manned by a conscript army. In contrast, NATO expected to fight while outnumbered and focused on producing high-quality tanks that would be capable of defeating enemy AFVs at long range and conducting sustained defensive operations. US tanks accordingly carried a larger number of main gun rounds and stressed crew habitability, superior sights, and the ability to shoot from "hull-down" defensive positions. In Vietnam, these vehicles would be employed in a vastly different combat environment.

Medium tanks

The M48A3 Patton

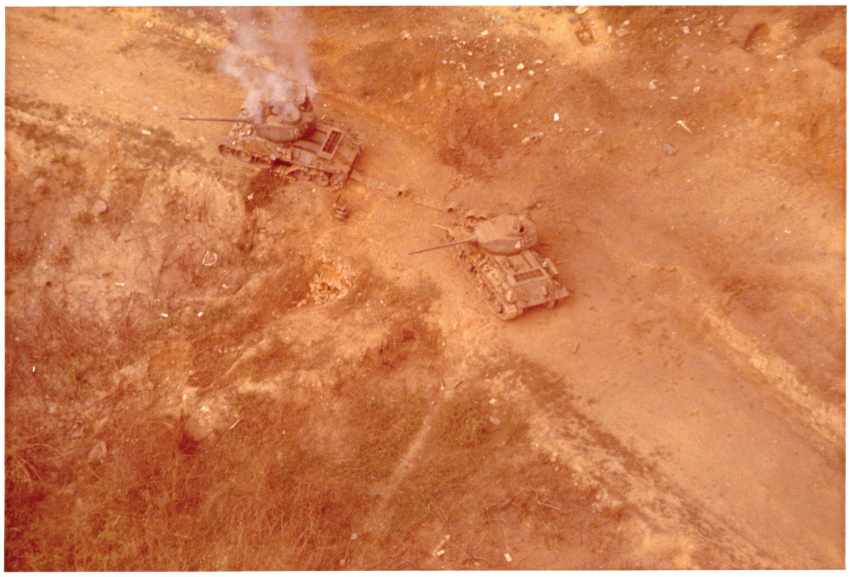
The ARVN did not possess medium tanks until late 1971, although the US operated M48A3s during the years of its major in-country operations. The M48 followed the M47, an interim design fielded as part of the crash US effort to field new tanks after the onset of the Korean War, and featured an improved armor layout, turret, fire-control system, and the elimination of the M47's obsolete assistant driver position. The M48A1 variant introduced a cupola housing the commander's machine gun. Early M48 models had fuel-hungry gasoline engines, limiting range to 115 kilometers on a single tank of gas, but the M48A3 model used by American and South Vietnamese forces had the AVDS-1790 diesel engine, giving it a range comparable to the T-54.

The M48A3 was heavier and less mobile than its T-54 opponent. Like most Western tank designs, the Patton was higher and more visible than its Soviet rivals when moving in the open but could more easily depress its main gun to assume a better hull-down firing position. The M48A3's larger size allowed the crew to work together more easily, and for longer periods. The US favored the use of HEAT (High Explosive Antitank) rounds as

tank-killers at the time, and as the rounds had a ballistic trajectory when fired at long-range targets, the US developed a complex fire-control system for the M48 with a coincidence rangefinder and associated fire-control computer.

The US ultimately formed three South Vietnamese battalion-sized M48A3 tank squadrons, and these troops are likely part of the 22nd Tank Squadron being trained in the III Corps area at the time of the Easter Offensive. (Getty Images)

The US Army was initially reluctant to deploy armor to Vietnam, considering tanks ill-suited to the terrain and demands of counterinsurgency operations, but soon realized the value of armor in the conflict. American forces deployed M48A3s within its divisional armored cavalry units, the 11th Armored Cavalry Regiment, and in three additional tank battalions. The Patton was well regarded for its ability to deliver heavy firepower and the protection the tank gave the crews against mines. The tank could carry a variety of ammunition types, and HE (High Explosive), canister, beehive, and white phosphorous/smoke were heavily employed. With the drawdown of US forces after 1968, and the ARVN's encounter with NVA T-54s during the *Lam Son 719* attack into Laos, the US began to provide M48A3s to southern forces in 1971. The 20th Tank Squadron in I Corps' area began training on 56 Pattons and had just completed gunnery and tactical unit drills before being rushed north to meet the NVA tanks leading the *Nguyen Hue* Offensive aimed at Quang Tri.



NVA T-34-85s maneuvering around antitank mines and under air attack while moving against US-supported irregular forces in Laos. In addition to training, the NVA used small numbers of T-34-85s in operations in Laos and during the 1972 Easter Offensive. (VA060344, Michael Ingham Collection, Vietnam Center and Sam Johnson Vietnam Archive, Texas Tech University)

Comparative technical characteristics: medium tanks			
	M48A3	T-34-85	T-54, Type 59
Initial operating capability	1952	1944	1947
Number produced	4,762 A3, 12,000–13,500 M48s overall	84,000-plus (all T-34 models)	35,000 (100,000-plus for all T-54/55/Type 59s)
Crew	4	5	4
Dimensions: L x W x H (m)	8.7 x 3.6 x 3.1	6 x 3 x 2.4	6 x 3.27 x 2.6
Amphibious	No	No	Can have Snorkel capability
Night fighting capability	Yes	No	In T-54B
Mobility			
Loaded weight (tonnes)	47	32	36
Engine (hp)	750 (@ 2,400rpm)	500 (@ 1,800rpm)	520 (@ 2,000rpm)
Horsepower/weight (hp/t)	15.89	14.2	14.4
Max speed (km/h)	48	55	50
Range (km)	463	300	440–510
Ground pressure (kg/cm^2)	0.83	0.8	0.8
Firepower			
Main gun	90mm M41	85mm ZiS-S-3	100mm D-10 rifled
Main gun ammo	62	55–60	34
Gun elevation/depression (degrees)	+19/-9	+25/-5	+17/-5
Machine guns	7.62mm coaxial 12.7mm cupola	7.62mm bow 7.62mm coaxial Can have 12.7mm turret AA mount	7.62mm bow (T-54A/Type 59) 7.62mm coaxial 12.7mm AA turret
Maximum armor (mm) and degree of slope			
Turret front	114 (30 degrees)	60 (30 degrees)	203 (0 degrees)
Glacis	110 (60 degrees)	47 (60 degrees)	97 (60 degrees)

Notes on select technical characteristics

Dimensions are the length of the hull (not including the main armament), and width and height (not including any turret MG mount) of the vehicle in meters; the higher the vehicle, the more visible it is on open battlefield terrain.

Weight is the combat loaded weight of the vehicle in metric tons.

Hp/t is the amount of horsepower per ton of vehicle; the higher this number, the more agile the vehicle.

Maximum speed is the maximum road speed, in kilometers per hour.

Range is the distance the vehicle can travel on one load of fuel without any external tanks.

Ground pressure indicates the ability of the vehicle to traverse soft terrain – the lower the number here, the better.

The gun elevation and depression, in degrees, indicates how much the gun can move up and down; the more it can be depressed, the easier it is for a tank to fire over a slope in a "hull-down" position.

Armor figures are for the most heavily protected portion of the tank, the turret and hull fronts; sides, rear, and top will have much less armor. The greater the angle of the armor, the more protection it provides.

The T-34-85

The first tank received by the NVA was the legendary T-34, arguably the most significant tank of World War II. The USSR chose to produce the T-34-85 in large numbers even after 1945, despite developing the more sophisticated T-44 design. Simple and rugged, the T-34-85 was an ideal tank for friendly Third World regimes, and Hanoi used its T-34-85s extensively for early training and experimentation as it established its armored force. In 1972, it retained roughly 100 in its order of battle, and several T-34-85 battalions participated in the 1972 offensive. The tank retained adequate firepower to handle ARVN APCs and light tanks, although the M41A3's gunnery controls were more modern and would be likely to outshoot T-34-85s in tank-on-tank duels.

An ARVN M24 light tank being passed by trucks carrying arriving US personnel of the 11th Armored Cavalry Regiment in 1966. The US intervention led to upgrades to South Vietnamese forces, including the replacement of their M24s with improved M41A3s, but ARVN forces were subsequently relegated to pacification and security duties while US forces conducted the major operations. (NARA/Wikimedia/Public Domain)

The T-54/Type 59

The iconic Eastern Bloc armored vehicle of the Cold War, the T-54, and its T-55 follow-on were the most produced tank in history. T-54/55s equipped the massive Warsaw Pact arsenal that threatened Western Europe for decades, rolled over anti-communist protests in Hungary and Czechoslovakia, and fought in most conflicts that featured armored warfare from the 1950s to the present day. The early T-54 design had numerous teething issues that were worked out in subsequent models, in particular the replacement of the first turret with its shot traps with the improved half-eggshell hemispheric design that has characterized all subsequent Soviet tanks. The T-54A model added the "Gorizont" (Horizon) vertical axis gun stabilization system to allow the tank's 100mm armament to fire on the move, followed by the T-54B's "Tyklon" (Cyclon) two-axis stabilization system.

The T-54 was a low-silhouette vehicle with good power and speed for a tank of its size and weight, and the wide tracks allowed for mobility over soft terrain. The T-54's ability to travel 510 kilometers on one tank of fuel

allowed sustained operations without resupply, and placing external fuel tanks on the vehicle could extend the range further. Armor was good – 203mm on the turret mantlet – and the half-eggshell hemispheric shape of the turret increased the possibility of deflecting enemy rounds. The T-54's powerful 100mm gun was able to employ a variety of armor piercing, HEAT, and HE shells. Soviet designers equipped the T-54 with a simple and easy-to-use stadia range-finding system which allowed for good accuracy at 1,000 meters or less, the ranges at which they expected most engagements to take place. Crew arrangements were cramped to limit tank height and visibility, hindering crew operations, increasing fatigue, and limiting the ammunition that could be carried. The low silhouette also restricted the T-54's ability to elevate and depress its main gun, and when in defense, the tank would have to show more of its turret and hull when attempting to fire from a hull-down defilade position than ARVN M48A3s.

Hanoi's massive *Tet* Offensive in 1968 led to the heavy employment of ARVN forces, including its armor. A small number of M24s were kept fully mobile by Air Marshal Ky at Tan Son Nhut for political support against any coup, and were used in 1968 to help repel enemy attacks against the base by several VC regiments. (NARA/Wikimedia/Public Domain)

With Soviet assistance, the PRC established a production facility in the Beijing Military Region to produce licensed copies of the T-54A tank, designated Type 59 in PRC service. Production began in 1957 at Baotou, with other facilities subsequently established in the Inner Mongolia and Shanghai regions. The PRC copy was virtually identical to the T-54A, although it often lacked the gun stabilizer and some of the driver's night-

driving IR gear. The vehicle was also known as WZ120, its industrial designation. The design remained in Chinese service for decades, with later models receiving a series of upgrades.

Light tanks

The M24 Chaffee

The ARVN's armored force was initially equipped with M24 Chaffee light tanks inherited from departing French forces, and small numbers remained in service in 1972. The M24 Chaffee entered service in late 1944 and was one of the best light tank designs of the era whose lightweight, short-recoil 75mm T13E1 gun originally developed for use on the B-24 bomber matched the firepower of many medium tanks. Further, the M24 was mobile, easy to maintain, and had sloped armor that improved survivability. France received 1,254 M24s and used them effectively in Indochina, afterwards passing a number to equip the new South Vietnamese armored force. The US began to replace the ARVN's worn-out M24s with M41A3s in 1965. The M24 did not fully depart the scene, however, with many positioned by the ARVN to defend various bases, bridges, and airfields as static pillboxes, usually with engines removed. Air Marshal Nguyen Cao Ky, a political rival to President Thieu, kept two five-tank "flights" of M24s stationed at Tan Son Nhut Airbase near Saigon with engines intact and manned by Air Force personnel as a counter-coup force to meet any move by army tanks. The NVA itself employed several M24s captured from its Cambodian and ARVN opponents in the 1972 offensive, organized in the 33rd Separate Tank Company that attacked into the ARVN III Corps area.

The M41A3 Walker Bulldog

The M41A3 Walker Bulldog was the ARVN's primary tank in 1972. North Korea's T-34-led attacks in 1950 shocked the US and led to the replacement of the M24 Chaffee with a new light tank design mounting a high-velocity 76mm gun. In 1951, the US fielded the first production models of the 24-ton M41, designated the Walker Bulldog in honor of General Walton Walker, the Commander of the US Eighth Army who was killed in a traffic accident in Korea in December 1950. The final M41A3 version used by the ARVN was upgraded with a fuel-injection system to increase mileage. Although an excellent design, the US decided that it needed to pursue a light tank capable of being dropped by parachute, and the M41A3 left

service with US forces in the early 1960s. South Vietnamese forces received the first 350 Walker Bulldogs in 1965. The US ultimately transferred more than 500, and the simple and reliable M41A3s proved popular with ARVN troops. As with the M24, the South Vietnamese proved expert at maintaining their tanks, often creatively improvising repairs when short of regulation spare parts.

The M41A3 had good mobility, and with its limited armored protection – a maximum of 38mm at the turret mantlet – needed agility and speed to increase its survivability when faced with enemy tanks or antitank weapons. Its high-velocity 76mm gun was easily able to defeat the NVA's PT-76s and Type 63 light tanks, and could even defeat heavily armored T-54s, especially at close range. In Laos, experienced ARVN crews outshot NVA medium T-54s in several engagements, although they fared more poorly in 1972. Both the tank commander and gunner had controls to aim and fire the gun on the M41A3, and a well-trained crew could fire rapidly – theoretically up to 12 rounds a minute. The tank also carried a large number of main gun rounds – seven "ready rounds" immediately accessible in the turret and 55 stored, most in front of the gunner. When not engaged in rare tank vs tank actions, the Bulldog's mobility and ability to support ARVN infantry with its variety of HE, smoke, and antipersonnel canister rounds came to the fore.

Comparative technical characteristics: light tanks				
	M24	M41A3	PT-76	Type 63
Initial operating capability	1944	1951	1952	1963
Number produced	4,731	5,467	Approx 12,000	1,550
Crew	5	4	3	4
Dimensions: L x W x H (m)	5.49 x 2.95 x 2.77	5.8 x 3.2 x 2.7	6.9 x 3.1 x 2.3	7.1 x 3.2 x 2.5
Amphibious	No	No	Yes	Yes
Mobility				
Loaded weight (tonnes)	18.37	23.5	14.6	18.4
Engine (hp)	220 @ 3,400rpm	500 @ 2,800rpm	240 @ 1,800rpm	400 @ 2,000rpm
Hp/Wt	12	21.26	16.4	21.7
Max speed (km/h)	56	72	44 (10 in water)	64 (12 in water)
Range (km)	160	161	370	370
Ground pressure (kg/cm^2)	0.79	0.7	0.5	0.58
Firepower				
Main gun	75mm M6	76mm M32 rifled	76.2mm D-56TM rifled	85mm Type 62-85TC rifled
Main gun ammo	48	62	40	47
Gun elevation/depression (degrees)	+15/-10	+19/-9	+30/-4	+18/-4
Machine guns	Hull, coaxial, and turret AA	7.62mm coaxial 12.7mm turret	7.62mm coaxial could have 12.7mm turret	7.2mm coaxial 12.7mm turret
Maximum armor (mm) and degree of slope				
Turret front (mm)	38 (mantlet)	38 (mantlet)	17 (30 degrees)	11
Glacis (mm)	25	25.4 (30 degrees)	14 (45 degrees)	11 (80 degrees)

D

1. M113, 11th Armored Cavalry Squadron, 1972

This M113 has been up-gunned with shielded .30cal Browning machine guns towards the rear, as well as a shield for the forward-facing .50cal. As noted in the text, ARVN M113s varied considerably in how many MGs were mounted, and if or how they were shielded. As with many ARVN AFVs in 1972, this M113 has foliage added for camouflage against NVA direct observation and fire. Vehicle markings designate it as assigned to the 11th Armored Cavalry Squadron, and in the photograph used as the basis for this plate it is transporting troops of the 3rd ARVN Infantry Division. Several regiments of the 3rd, which suffered heavy losses in the opening days of the offensive, the 11th and 17th Armored Cavalry Squadrons, the 20th Tank Squadron, and various regional and popular force militia units were assigned to the 1st Armored Brigade HQ and held the Dong Ha area north of Quang Tri against constant NVA pressure until the southern defenses collapsed at the end of April.

2. ARVN M41A3 Walker Bulldog Light Tank, 1st Armored Brigade, Dong Ha, 1972

This M41A3 light tank has had sandbags mounted on the turret side for additional protection against shaped charge warheads. Throughout the Vietnam conflict, US and ARVN AFVs were vulnerable to RPG-2 and 7 rocket launchers, as well as HEAT rounds from recoilless rifles. During the Easter Offensive, ARVN tanks also faced the threat of fire from enemy tanks and AT-3 Sagger ATGMs. ARVN troops added ammunition boxes filled with sand or, as on this tank, sandbags to the sides of the turret in hopes that they would cause the HEAT round's shaped charge warheads to detonate prematurely and not penetrate the armor. The extra materials added more weight, causing strain on the engine and transmission, but could mitigate the impact of hits and raise the morale of the crew.

A photograph of a PT-76 tank with NVA infantry on maneuvers in Cambodia in the years following the fall of the South in 1975. The PT-76 had a two-man turret crew, forcing the tank commander to do “double duty” – aiming and firing the tank’s main gun, cutting down on situational awareness and responsiveness in action. (Getty)

The PT-76

The NVA valued light tanks for their mobility and amphibious capabilities and fielded both Soviet PT-76 and Chinese Type 63 models. After the Red Army faced many difficult river crossings on the road to Berlin, the Soviets sought an amphibious light tank able to swim across water obstacles with minimal preparation and give attacking infantry immediate armored firepower. The resulting PT-76 used a hydro-jet system that pumped water to propel the tank at 10km/h when swimming. The vehicle was large for a light tank, buoyant and stable while afloat, and in theory could fire its main gun or carry up to ten infantrymen on the deck when swimming in calm water. The tank’s low ground pressure gave it good mobility even in swampy terrain, and its 76mm gun could employ the usual AP, HEAT, and HE rounds. The small turret, however, only allowed for a commander and loader, meaning that the tank commander was double-tasked with aiming and firing the main armament. The PT-76’s light 14mm (maximum) welded steel armor provided protection only against small-arms fire.

The Type 63

Hanoi also received numbers of Type 63 light tanks from China. PRC designers received and studied Soviet PT-76s, but rather than directly copy the tank – as they had with the T-54/Type 59 – they developed a related but new design. The Type 63 employed a hydro-jet water propulsion system similar to the PT-76s, but the Type 63 was larger and replaced the Soviet tank's welded turret and 76mm main armament with a cast turret and a more powerful 85mm gun. The tank had a four-man crew, allowing the turret to be manned by a full three-man team of gunner, loader, and commander, and was thus able to operate more efficiently than the PT-76. The Type 63 mounted a heavy 12.7mm machine gun on the turret roof for antiaircraft use in addition to its 7.62mm coaxial MG. As with the PT-76, the Type 63's armor would generally only be proof against infantry small arms and could be penetrated by any antitank weaponry and even 12.7mm/.50cal heavy machine guns.

A Chinese PLA Type 63 tank in a Beijing military museum. The Type 63, like the PT-76 that inspired its design, had a large hull to ensure buoyancy, but featured a larger, three-man turret with an 85mm gun. Hanoi's military valued its light tanks for their mobility in the difficult terrain of Southeast Asia. (Max Smith/Wikimedia/Public Domain)

Armored personnel carriers and other AFVs

ARVN

The M113 APC, modified with additional machine guns and shields, is the iconic AFV of the Vietnam conflict. Originally designed by the US to serve as a "battle taxi" to transport and protect infantry moving in support of

tanks in high-intensity combat, the M113 was used differently in Vietnam, where its mobility and firepower allowed it to serve as an assault vehicle. First used by the ARVN in the early 1960s, M113s successfully operated in difficult terrain, including the Mekong Delta, and using the roof-mounted .50cal heavy machine gun inflicted heavy defeats on VC guerillas. Losses to the unprotected .50cal gunners at the Battle of Ap Bac in 1963 led to the installation of shields to protect the MG firing position, and in US service the addition of two M60 machine guns behind with shields to fire to the sides. The US designated these M113s "Armored Cavalry Assault Vehicles" (ACAVs), and with six-man crews these served in a light tank role.

An M113 APC transporting troops to defend the Dong Ha line in 1972. Although facing no air threat, ARVN vehicles were often camouflaged with foliage to frustrate enemy direct observation. (NARA/Wikimedia/Public Domain)

Unlike US ACAVs, the M113s in ARVN service varied in the shields and machine guns carried. Some carried three shielded MG positions like the US versions, but many others only had a shielded .50cal, with .30cal Browning or M60 machine guns set up on tripods behind without shields. Others carried an M74 turret mounting twin .30cal machine guns in place of the .50cal. Unlike US vehicle commanders, who typically manned the .50cal MG, ARVN commanders stood in the open crew compartment behind the gunner to direct vehicle fire and movement. ARVN M113

platoons contained four MG-armed vehicles and one carrying a 106mm recoilless rifle for additional firepower. M113s were modified to serve in a wide variety of additional roles, including mortar carriers, flamethrowers, armored ambulances, and command posts which were found in supporting roles in ARVN armored units. M113s were reliable, mobile, and able to deliver high amounts of firepower, but their thin armor proved vulnerable to mines and enemy man-portable antitank weapons. Both US and ARVN troops typically rode atop rather than within M113s when traveling on roads or trails that might be mined.

To improve firepower, each ARVN M113 platoon had an M113 mounting a 106mm recoilless rifle in addition to the four with machine guns. (Getty Images)

The ARVN deployed limited numbers of additional AFVs in 1972. The V100 Cadillac Gage four-wheeled armored car was deployed to Vietnam in 1967 to give US Military Police units more mobility, protection, and firepower for their perimeter security and convoy escort duties. In the ARVN, each armored cavalry squadron included a V100 platoon as part of the squadron headquarters. The V100 featured light but sloped armor, and its high ground clearance helped to mitigate the omnipresent threat of mines. The V100 could be equipped with a variety of machine guns or grenade launchers.

E

1. NVA PT-76 on display for senior leaders, Hanoi, 1971

The USSR exported 2,000 PT-76s to 40 allied and friendly nations, North Vietnam among them. While its armor was only proof against small-arms fire, the NVA valued the vehicle's amphibious capability and ability to traverse wet terrain and water obstacles. This PT-76 was part of a 1971 armor display at Hanoi for senior leaders that included a T-34-85, Type 63, T-54, and ZSU-57-2. The PT-76 on display featured a pintle-mounted 12.7mm DShK machine gun for antiaircraft use that was unpopular with crews and rarely seen on PT-76s during the offensive. The PT-76 was one of the earlier tanks received by Hanoi and equipped various independent tank companies. The NVA used PT-76s during its 1968 attack on Lang Vei during the Khe Sahn Campaign in 1968, and they featured prominently in North Vietnamese operations in Laos.

2. NVA Type 63 Light Tank, 202nd Mechanized Regiment

The amphibious Type 63 light tank was used by the NVA to cross water obstacles in the initial attack across the DMZ, and later in its attempt to penetrate the Vietnamese marine defenses south of Quang Tri during May. Sixteen Type 63s were also rushed to augment the 26th Tank Group for its final attempt to take An Loc in the III Corps area. Like the PT-76, the Type 63's light armor could only protect against small-arms fire, although the cast turret gave improved ballistic protection. Many of the thinly armored Type 63s were lost in both engagements. The Type 63's cast turret resembled the T-54, and likely led to many being misidentified as T-54s by US and South Vietnamese forces.

The first purpose-built Soviet APC, the postwar BTR-152 was inferior in several aspects to US and German wartime halftracks. (Author's Collection)

With the BTR-50PK, the USSR moved to a tracked APC design with an open troop compartment and later, in the PB variant, with an armored roof. (Author's Collection)

The US Marine Corps deployed to Vietnam with its LVTP-5 amphibious assault vehicles. As there was little opportunity for US landings on contested beaches, the LVTP-5 was employed ashore as a light armored vehicle. It was ill-suited for the role, as the LVTP was large and bulky – designed to carry 30–34 troops – but lightly armored and with fuel tank cells in the floor of the vehicle, making it extremely vulnerable to mines. In

1972, however, with the NVA's conventional attack, US and ARVN forces were able to employ the vehicle in its intended amphibious role during ARVN counteroffensive operations aimed at retaking the city of Quang Tri. The US subsequently gave Saigon 31 LVTP-5s to allow the Vietnamese Marines to establish their own amphibious tractor battalion.

Comparative technical characteristics

	M113	V100	LVTP-5	K-63	BTR-152	BTR-40A	BTR-50PK	BTR-60PB
Initial operating capability	1960	1964	1956	1963	1950	1950	1954	1960
Number produced	85,000	3,200	1,124	8,000	~15,000 all types	8,500	6,500	~25,000 all types
Crew	2	3	3	2	2	2	2	2
Troop carrying capacity	11 (as assault vehicles, typically 6–7)	9	34	13	17	8 in APC variant	12	14
Dimensions: L x W x H (m)	4.8 x 2.7 x 2.5	5.7 x 2.3 x 2.4	9 x 4 x 3	5.5 x 3 x 1.9	6.8 x 2.3 x 2.1	5 x 1.9 x 1.75	7 x 3.2 x 2	7.6 x 2.8 x 2.3
Amphibious	Yes	Yes	Yes	Yes	No	No	Yes	Yes
Mobility								
Loaded weight (tonnes)	12.3	7.37	39.8	12.6	9	5.3	14	10.3
Engine (hp)	215 @ 4,000rpm	210 @ 4,000rpm	704	320 @ 2,500rpm	110 @ 2,800rpm	80 @ 3,400rpm	240 @ 1,800rpm	2 engines, 2 x 90hp @ 3,400rpm
Hp/Wt	21	20.42	19	25.4	12.2	15.1	16.9	17.4
Max speed (km/h)	68	100	48, 11 in water	66	65	80	44	80, 10 in water
Range (km)	480	644	306	500	650	285	260	500
Ground pressure (kg/cm²)	0.51	wheeled	0.65	0.57	wheeled	wheeled	0.52	wheeled
Machine guns	Mixes of 12.7mm and 7.62mm; could have 106mm RR	Various MGs and grenade launchers	7.63mm	12.7mm heavy machine gun	12.7mm or 7.62mm	2 x 14.5mm in AA version; 7.62mm in APC	12.7mm or 7.62mm	Various; could include 14.5mm, 12.7mm, 7.62mm
Armor**								
Maximum armor (mm)	38–45	6	25	14	14	8	11	9

The most common and important NVA APC in 1972 was the Chinese-made K-63. Hanoi's forces lacked adequate numbers of K-63s to provide enough infantry support to its attacking tanks, and received more after 1972 as it built the strategic army corps it used to destroy the Saigon regime in 1975. (Max Smith/Wikimedia/Public Domain)

NVA

Hanoi was unable to employ enough armored personnel carriers to support its attacking tanks during the 1972 offensive, frequently having to mount its infantry on tanks during assaults. The most numerous APC was the Chinese K-63 (industrial designation YW531), which entered PLA service in 1963 and was its most common APC until the 1990s. The K-63 was comparable to the M113 and was reasonably mobile, armed with a machine gun, and although lightly armored capable of transporting the driver, commander, and up to 13 troops. In addition to the K-63, the NVA had smaller numbers of other APCs it received from the USSR, including BTR-50PKs, BTR-152s, and ultimately BTR-60PBs. The Red Army lacked an APC during World War II, and fielded its first effort, the BTR-152, soon afterwards. The vehicle was a lightly armored, open-topped, and wheeled APC that lacked good cross-country capability and was inferior to US and German World War II-era halftracks. The BTR-152 could transport 17 men – half a Soviet infantry platoon. In 1957, the Soviets fielded their first tracked APC, the BTR-50, based on the PT-76 light tank chassis, able to carry 12 troops, and with superior off-road mobility. The BTR-50 began with an open-top configuration and was later fielded in the BTR-50PK armor-top variant.

The NVA modified many of its BTR-50PKs to carry 14.5mm antiaircraft machine guns on their rear deck. North Vietnam also had BTR-60PBs in its order of battle and received more after the 1972 offensive. The BTR-60 ultimately proved to be the wheeled APC design most favored by the Soviet Army and has served as the basis for the subsequent BTR-70, BTR-80, and BTR-82 vehicles used to the present day.

A captured example of a T-34 modified by the NVA to carry a 37mm antiaircraft turret on display at Aberdeen Proving Ground, Maryland. The vehicle has been repainted and is currently at the US Army's Antiaircraft Center at Fort Sill, Oklahoma. (Don S. Montgomery/US DOD/Wikimedia/Public Domain)

Despite the lack of any enemy air threat to their forces, the US deployed four battalions of antiaircraft vehicles to South Vietnam for base defense. The ARVN inherited numbers of these systems during the Vietnamization era. (USMC/Wikimedia/Public Domain)

Self-propelled antiaircraft guns (SPAAGs)

Although there was no NVA air threat in Vietnam, the United States deployed four non-divisional battalions of activated Reserve and National Guard air defense troops. These units used the M42A1 Duster, which mounted two 40mm World War II-vintage antiaircraft guns in an open turret carried on a modified M41 tank chassis. Obsolescent as an air defense system, the Duster proved useful in Vietnam in perimeter defense and convoy security roles. Its heavy 40mm shells were effective against enemy troops in dense foliage, although the Duster's light armor and open turret top made it extremely vulnerable in turn. With the departure of US forces, several Dusters, along with truck-mounted .50cal AA machine gun vehicles, were turned over to ARVN forces and used to form an air defense battalion.

F

1. North Vietnamese Army K-63 (YW-531) armored personnel carrier

Most K-63s engaged during 1972 were assigned to the 202nd Mechanized Regiment, which had two K-63 mechanized infantry battalions in addition to its two tank battalions. Overall, the NVA lacked adequate APCs, and resorted to having infantry ride its tanks, increasing the vulnerability of the infantry to enemy fire and of the tank once their infantry support was lost. The K-63 was a capable APC equipped with a DShK 12.7mm heavy machine gun – the equivalent of the US .50 cal. The gun, however, lacked a shield and could only be used by a gunner standing in the troop compartment rather than the crew. If no troops were aboard, the commander would need to shift to the rear to use the machine gun, potentially disrupting vehicle operations. By 1975, Hanoi had received additional K-63s from Beijing, allowing for improved combined arms operations in its final campaign against the ARVN.

2. NVA modified T-34 with 37mm AA guns, captured by ARVN forces

The NVA modified a number of its armored fighting vehicles before the 1972 offensive in an effort to provide mobile antiaircraft defense for its attacking tank units. BTR-50s had 14.5mm machine guns placed on their rear decks, and some T-34s were photographed with a single 57mm S-60 antiaircraft gun in improvised turrets. Similarly, 24 T-34s were equipped with crude turrets carrying two Chinese 37mm anti aircraft cannons. The vehicle shown here was captured by the ARVN 4th Infantry Regiment of the 2nd Division in July 1972, likely in combat south of Hue, and sent to the United States for analysis. The vehicle carries standard T-34 rear fuel tanks to extend range and had crude holders on the sides to carry extra ammunition for the 37mm cannons. The 37mms could be deadly against low-flying aircraft, helicopters, and ground targets, but lacked modern sights, a rapid turret traverse, and any ability to engage aircraft at night or in cloudy conditions. The vehicle was extremely vulnerable due to its thin turret armor and open top.

Comparative technical characteristics				
	M42A1	ZSU-57-2	T-34-37mm	ZSU-23-4
Initial operating capability	1951	1957	Unknown	1964
Number produced	3,700	Over 2,023	24	~6,500
Crew	4–6	6	6	4
Dimensions: L x W x H (m)	5.8 x 3.3 x 2.9	6.2 x 3.7 x 2.7	6.4 x 3 x 3	6.5 x 3.1 x 2.5
Mobility				
Loaded weight (tonnes)	22.6	28.1	32	19
Engine (hp)	500 @ 2,800rpm	520 @ 2,000rpm	580	280 @ 2,000rpm
Hp/Wt	22.2	18.5	18.1	14.7
Max speed (km/h)	72	50	55	45
Range (km)	160	420	300	450
Ground pressure (kg/cm^2)	0.658	0.63	0.8 (T-34-85)	0.267
Firepower				
Main armament	2 x 40mm A2A1	2 × 57mm L/76.6 S-60	2 x Type 61 37mm	4 x 23mm 2A7 (AZP-23)
Main armament ammo	336	300		2,000
Additional machine guns	7.62mm	None	7.62mm bow	None
Guidance	Optical	Optical sights	Optical	Gun Dish Radar
Armor				
Maximum armor (mm)	25	15	45	15

As the 1972 offensive would, for the first time, involve the open maneuver of large NVA forces, Hanoi deployed a wide variety of air defense assets, including, for the first time, SA-7 shoulder-fired SAMs as well as towed 37mm and 57mm AA guns. The most effective NVA SPAAG sent into the attack was the ZSU-57-2, which mounted two 57mm antiaircraft guns in a large open turret on a lightened T-54 chassis. The vehicle lacked a radar, was confined to engaging low-level targets in daylight and fair weather, and was vulnerable due to its light armor and open turret. The NVA had received some wheeled BTR-40A vehicles carrying twin 14.5mm antiaircraft machine guns that were used as SPAAGs and also employed for reconnaissance missions. To further strengthen its mobile air defenses, the NVA modified additional vehicles to carry AA guns. Twenty-four T-34s had their turrets replaced with an open-topped improvised turret mounting twin 37mm cannons, while some BTR-50PKs were modified to carry a 14.5mm MG on the rear deck. Photographs also show some BTR-152s modified with similar AA MG mounts, and what appear to be some T-34s with turrets carrying a single S-60 57mm antiaircraft cannon. Only after the Easter Offensive did Hanoi receive the newest-generation Soviet ZSU-23-4 SPAAG, which matched a powerful

radar to four 23mm cannons, allowing for night and all-weather target engagement. The “Shikla,” as it was known in Soviet service, was the most capable SPAAG of the era, and considered a major threat by NATO well into the later years of the Cold War.

A North Vietnamese ZSU-57-2 SPAAG destroyed near An Loc. Desperate to mass all possible firepower for its final attempt to take the city, the NVA sent ZSUs into the attack. With its light armor and open top, the ZSUs were vulnerable to both air and ground attack. (USAF/Wikimedia/Public Domain)

A BTR-40A antiaircraft vehicle. The NVA used these both to augment their mobile antiaircraft capabilities and to serve as light reconnaissance vehicles scouting ahead of their attack columns. (Author’s Collection)

THE OFFENSIVE

In early 1972, the ARVN on paper appeared well able to meet any NVA attack, with 11 infantry divisions, 21 Ranger (light infantry) battalions, 37 border ranger battalions, and a marine and airborne division that served as a strategic reserve. The armored force was composed of 18 armored cavalry squadrons with M41A3 light tanks and M113 APCs. ARVN units were well armed with up-to-date US weapons, ranging from M16 rifles to M107 175mm self-propelled artillery pieces. To augment Saigon's APCs and light tanks, the US was organizing three tank squadrons with M48A3 medium Pattons, although only one was ready for operations in early 1972.

Balance of forces, March 30, 1972

	ARVN	NVA
Infantry Divisions	11	16 (14 in initial attack)
Marine Divisions	1	
Airborne Divisions	1	
Separate Infantry/Sapper Regiments		26
Total Infantry Battalions	120	309
Armored Regiments		4
Armored Cavalry Squadrons	18	
Tank Squadrons/Battalions	3 (2 of them forming)	16
Medium Tanks	56 M48A3	350 T-54/Type 59 100 T-34-85
Light Tanks	400 M41A3	200 PT-76/Type 63
Armored Personnel Carriers	1,200	300

Despite its large order of battle, the ARVN suffered from endemic weaknesses. Senior commanders were notoriously corrupt and usually selected by President Thieu for their political loyalty rather than leadership ability. The ARVN I and II Corps commanders were particularly inept and had to be replaced with more competent leaders in the midst of the offensive. At the lower command levels, the massive expansion due to Vietnamization had stressed the limited supply of officers, and in 1971 a third of all battalions were led by captains rather than lieutenant colonels. Focused on counterinsurgency and pacification tasks for over a decade, all command levels lacked experience with large-scale conventional operations.

In contrast, the NVA had a strong and clear chain of command and was manned by well-disciplined officers and troops subjected to continuous political indoctrination. In 1972, Hanoi's military fielded 16 infantry divisions supported by a large number of separate infantry, sapper, artillery, and armored regiments, and armed with large amounts of new equipment including tanks, trucks, and artillery pieces received from the USSR and China. Fourteen divisions and 26 regiments were initially dedicated to the offensive against the South, led by 655 tanks.

While a superb light infantry army, the NVA struggled to incorporate all its new equipment and lacked the time to fully train troops and staff in

combined arms operations. Although it fostered firm control and powerful assaults, the NVA's rigid command culture limited initiative and operational flexibility. In 1972, Hanoi's officers repeatedly proved unable to exploit fleeting battlefield openings, and rather than bypassing strong ARVN defensive positions would order costly direct assaults on them.

At the strategic level, Hanoi's plan for the *Nguyen Hue* Offensive involved sequenced attacks on three separate fronts: first across the DMZ against Quang Tri Province, then against An Loc on the direct road to Saigon, and a final thrust aimed at Kontum with the potential to reach the coast and cut South Vietnam in two. On all three fronts, NVA tank-led attacks won initial successes but its commanders were unable to rapidly exploit initial ARVN defeats. When the NVA was able to renew the attacks, the ARVN, backed by the massive application of US airpower, battled Hanoi's forces to a standstill.

Quang Tri: the offensive begins

The offensive began on March 30 with heavy NVA artillery, infantry, and tank assaults against ARVN I Corps forces garrisoning Quang Tri Province. The relatively open terrain led Hanoi to deploy its largest concentration of armor on this front, and two armored regiments, the 202nd and 203rd, led the assault with 260 light and medium tanks. The ARVN Fire Support Bases (FSBs) scattered along the DMZ were positioned to interdict infiltration rather than halt a massed NVA assault, and rapidly fell. ARVN troops in the I Corps, soon followed by those in the II and III Corps areas, initially suffered from "tank panic," and just rumors of enemy tanks in the area could generate hasty and disordered retreats. On April 2, an ARVN regimental commander surrendered FSB Carroll, a major defensive position anchoring the western defenses of Quang Tri, with 1,800 troops and 22 artillery pieces. ARVN reinforcements, including the newly formed 20th Tank Squadron, rushed to defend the river line at Dong Ha and established defensive positions that held for several weeks as massive amounts of US airpower pounded NVA forces. The 20th's M48A3s repulsed attacking NVA armor in several engagements, although long-range fire by AT-3 Sagger/9M14 Malyutka ATGMs and RPG-armed antitank teams subsequently began to pick off ARVN tanks posted in static defensive positions.

G Tanks at Dong Ha, April 2, 1972

The 20th Tank Squadron was the most effective ARVN armored unit during the 1972 offensive. Newly formed, the 20th had a mix of some experienced M41 personnel and odds and ends sent from other units. However, despite a number of training challenges, the unit ultimately mastered the complex M48A3 fire-control system and had just completed tactical exercises when rushed north to meet the NVA thrust across the DMZ. On Easter Sunday, the M48A3s moved to the edge of the river near the Dong Ha Bridge and spotted an NVA tank column at long range. Before the tanks could seize the bridge, the M48s began to fire, destroying the six lead tanks. Radio intercepts picked up the NVA tank commander reporting that he had no idea where the incoming fire was coming from. Halted, the column was subsequently hit by South Vietnamese A-1 Skyraiders, destroying an additional nine NVA tanks, although one A-1 was brought down by NVA antiaircraft fire. Later in the day, the US Marines advisor to a nearby South Vietnamese unit, Captain John Ripley, aided by the 20th's advisor, Major James Smock, placed explosives on the Dong Ha Bridge despite enemy fire and blew it, and ARVN forces held the river line for the next four weeks. The 20th's ability to destroy NVA tanks at long ranges was proven again on April 9, when their M48A3s knocked out 16 T-54s in an action in defense of FSB Pedro to the southwest of Dong Ha.

M48A3s of the 20th Tank Squadron defending the river line near Dong Ha. On April 2, combined tank fire and airstrikes destroyed an NVA tank column moving to seize the bridge at Dong Ha. Captain John Ripley, advisor to a Vietnamese marine battalion in the area, aided by Major James Smock, the 20th's advisor, were then able to wire and destroy the bridge, allowing the ARVN to successfully hold the river line throughout April. (NARA/Wikimedia/Public Domain)

The 20th's most pronounced success against NVA armor took place on April 9, when M48A3 elements defending FSB Pedro destroyed 16 attacking T-54s. One Type 59 was

captured intact and withdrawn as a trophy. Many of the M48A3 kills on both the 2nd and 9th were at ranges of 1,500–3,000 meters. (NARA/Wikimedia/Public Domain)

By the end of April, NVA attacks had worn down the defenders, and a tactical redeployment by some of the 20th's M48A3s was interpreted by nearby ARVN infantry as a retreat, leading to a chain reaction of withdrawals. NVA forces surrounded and captured Quang Tri on May 2, with South Vietnam losing its first provincial capital. The retreating ARVN forces suffered heavily. The 20th Tank Regiment lost all of its tanks, with some knocked out by the enemy but most abandoned due to breakdowns, running out of fuel, or being swamped while trying to ford rivers after the retreat route was cut by destroyed bridges. Overall, the 1st Brigade lost 43 M48A3s, 66 M41A3s, 103 M113s, and 1,171 personnel.

An Loc: attacks on the road to Saigon

Days after the beginning of the offensive against the ARVN I Corps, Hanoi launched a major attack aimed at An Loc that directly threatened Saigon itself. The 26th Provisional Tank Regiment led the three-division force, totaling 35,000 troops and over 100 tanks. The opposing 3rd ARVN Armored Brigade controlled 120 M41A3s and 345 M113s, but they were dispersed in small detachments to support a variety of scattered FSBs. On April 5, NVA forces overran four ARVN battalions, one of them armored, defending Loc Ninh north of An Loc. ARVN armor tried to redeploy to meet the NVA assault, but was caught and ambushed at close range by T-54s on the road and lost 52 vehicles, including 12 M41s and 16 M113s. As in the north, the NVA was unable to exploit the sudden ARVN defeat, even though the city of An Loc and the road to Saigon were virtually undefended. ARVN defenses were heavily reinforced by the time the NVA had regrouped to attack An Loc several days later.

The massing NVA troops were hit by intense US and South Vietnamese airstrikes, including the emergency use of devastating B-52 "Arc Light" strikes. When the assault on the city was launched on April 13, NVA T-54s were stripped of supporting infantry by defensive fire and blundered blindly into the devastated An Loc ruins, where, galvanized by some early kills, ARVN tank-killing teams stalked them with M72 LAW antitank rocket launchers. After days of grinding urban combat, NVA tanks were able to fire directly into the ARVN divisional command post bunker, but it was the

high-water mark. Twenty-five knocked-out tanks, mostly T-54s, littered the battlefield. A second assault launched four days later was similarly repulsed.

ARVN troops ride a captured NVA Type 59 tank back from the battlefield, followed by a V-100 armored car. The tank belongs to the 4th Battalion of the 203rd Armored Regiment and was captured by 1st ARVN Division troops in the Hue area. The NVA often manned and utilized captured ARVN tanks if possible, while the South Vietnamese frequently used captured vehicles as trophies to improve public morale. (US Army/Wikimedia/Public Domain)

Cut off, surrounded, and continuously shelled, the An Loc garrison was difficult to resupply, and by May 11 consisted of only roughly 4,000 troops, 1,000 of them wounded. The NVA massed seven regiments, led by armor, for its climactic attempt to take the ruined city. Once again, the ARVN's tenacious defense and massive US air support smashed the attack, and by May 15 the NVA broke off with the loss of 40 more tanks. Pressure on the garrison lessened, and the siege was formally declared lifted on June 18. M48A3 Pattons of the newly formed 22nd Tank Regiment assisted in the relief operation.

Kontum: attack in the Central Highlands

In late April, the NVA began the third prong of the offensive and launched two divisions reinforced by the 297th Armor Battalion, totaling 50,000 troops and at least 50 T-54s, against Kontum and Pleiku in the Central Highlands. A third NVA division operating in the coastal zone supported the main attack by interdicting key lines of communications supporting ARVN forces defending to the west. The NVA's first target was 13 ARVN battalions, including the 14th and 19th armored cavalry squadrons dug in at FSBs in the Tan Canh and Dak To II area. Armor officers wanted to keep their units mobile, but the 23rd Division commander insisted that the M41A3s be dug into static defensive positions, and the NVA systematically targeted and destroyed them one by one with long-range AT-3 Sagger ATGM fire. At Dak To II, the T-54s of the 297th NVA Tank Battalion charged and overran the base, destroying the defending M41A3s with close-range fire. Despite intense US air support, ARVN defenses collapsed and the commander of the 23rd Division was killed in his headquarters bunker.

As with the NVA attacks to the north and south, Hanoi's forces were unable to exploit the rapid collapse of the ARVN and could only attack their next target, Kontum, 15 days later. The delay allowed the capable ARVN 22nd Division commander, Colonel Ly Tong Ba, to mass 11 battalions, 44 105mm and four 155mm howitzers, and 18 M41A3 tanks for the defense. The inept ARVN II Corps commander was replaced, and John Paul Vann, the dynamic senior US advisor, demanded priority for US air support and secured experimental helicopter- and jeep-carried BGM-71 TOW (Tube-launched, Optically tracked, Wire-guided) ATGM detachments to augment the defense. Five NVA regiments led by tanks began the assault on Kontum on May 14, but Ba had drilled his troops extensively on antitank tactics and as at An Loc, the NVA tanks were separated from their infantry and hunted down by the defenders with LAW rockets. Allied airpower, including B-52s, proved critical in repelling the assault. Colonel Ba, an armor officer, was adept at conserving his small force of M41A3s, then launching sudden counterattacks with them against any NVA penetrations into the urban area. Ten days later, Hanoi's forces launched their second assault, taking over half the city by May 27. Again, ARVN tenacity, LAWs, TOWs, and allied airpower decided the issue, finally breaking the NVA attack by the 30th. Dozens of NVA tanks littered the battlefield, some undamaged but abandoned by their crews. The NVA lost an estimated 4,000 troops and 80

tanks in total. Road communications to Kontum were restored by relieving forces on June 30.

ARVN M41A3s pass an artillery battery firing in support of forces defending in the Dong Ha area. ARVN 105mm guns were outranged by NVA artillery during the offensive, especially Soviet-supplied 130mm guns, and suffered heavily from counterbattery fire. The ARVN relied on US airpower to even the balance, although its impact was limited during the first days of April by poor weather. (Bettmann, Getty Images)

ARVN counterattack in the north

After the catastrophic retreat from Quang Tri in early May, President Thieu at last acted to replace General Lam, the inept I Corps commander, with Lieutenant General Ngo Quang Truong, widely regarded as one of the most capable ARVN generals. Truong restored discipline, rationalized the command structure, rebuilt ARVN units, and established an integrated fire-control center to synchronize all naval gunfire, artillery, and air support. Truong's measures allowed the ARVN to repulse several strong NVA attacks towards Hue, and his ARVN troops launched numerous raids to the north, initially by helicopter and subsequently with forces delivered both by helicopter and amphibious landings with US-provided LVTP-5 amphibious vehicles.

By June 28, Truong's preparations for a full counteroffensive to retake Quang Tri were complete, and he launched the attack with the elite Airborne and Marine divisions. The reorganized and reequipped 1st Armored Brigade's 11th, 17th, and 18th armored cavalry battalions and the

M48A3s of the 20th Tank Regiment led the attack, soon linking up with another amphibious hook by South Vietnamese marines landed in LVTP-5s. US forces staged simultaneous feints against the North Vietnamese coast to distract the NVA. The ARVN assault made good initial progress, but President Thieu demanded the attack shift to focus on the physical recapture of Quang Tri, rather than bypassing it to strike north. The NVA reinforced the city with elements of five infantry divisions, resulting in two months of grueling block-by-block urban combat during which the 20th's M48A3s were parceled out in platoon-strength units to support different infantry battalions. Eventually, on September 16, the South Vietnamese planted their flag on the ruins of the Quang Tri citadel. High-level diplomatic drama and strategic air operations dominated the next several months, as the US launched the intense *Linebacker II* raids on Hanoi to force the North to agree to a ceasefire.

ARVN troops training on M48A3s celebrate upon hearing news of the ceasefire. The US and ARVN completed the formation of three full M48A3 tank squadrons after the Easter Offensive, but the ARVN medium tank force would be heavily outnumbered by Hanoi's T-54s and Type 59s in 1975. (Getty Images)

BATTLE ANALYSIS

Strategic, operational, and tactical lessons

The ARVN lost 44,000 troops and hundreds of AFVs, while the NVA may have suffered up to 100,000 casualties along with the destruction of 134 T-54s, 56 PT-76s, and 60 T-34-85s. The NVA offensive had inflicted severe damage on the ARVN, especially in its early days, and for the first time seized southern territory it was able to retain after the ceasefire. Southern forces ultimately steadied and held with the aid of massive US air and logistical support, ultimately retaining control of 75 percent of South Vietnamese territory, all the major cities, and 85 percent of the population. Strategically, Hanoi's decision to attack on three widely separate fronts allowed the US and ARVN to shift resources to meet each crisis, whereas a single, concentrated NVA thrust in the north might have achieved more success.

Armored operations during the offensive reflected both armies' strengths and weaknesses. The ARVN's looser, US-style command culture was intended to foster flexibility, but more often led to confusion due to inept senior leadership. ARVN commanders chronically parceled out their tanks and AFVs in small detachments to support scattered infantry elements, and confined tanks to static defense rather than using them as mobile reserves as urged by US advisors. In the I Corps zone, the inept corps commander saddled the 1st Armored Brigade with too many subordinate units to effectively control and a static river-line defense of the Dong Ha area in April, allowing NVA Sagger ATGMs, recoilless rifles, and RPG teams to pick off ARVN tanks. In the II and III Corps, M41A3 tanks were similarly destroyed when confined to static defense in various FSBs at Dak To and Loc Ninh. ARVN commanders also struggled with retrograde operations. Poor command and control led to ARVN retreats invariably deteriorating into chaotic routs, with the withdrawing armor losing heavily in personnel, vehicles, and equipment.

In contrast, the NVA employed a Soviet command style of tight top-down control, in-depth planning, and rigid adherence to orders, allowing for hard-hitting initial assaults but inhibiting fluid, mobile operations. NVA commanders failed to exploit early the ARVN collapses at Camp Carroll,

Loc Ninh, and Dak To due to a lack of training for large-scale operations and a command culture that stressed adherence to plans, timetables, and orders received from above. The NVA repeatedly lost critical time as it regrouped and adjusted its logistics and plans before renewing attacks, leading to the subsequent costly and fruitless attacks on Kontum and An Loc.

The decisive factor in the ARVN's ability to hold after early reverses in 1972 was undoubtably allied airpower. Pictured is an A-1 Skyraider. Skyraiders, A-37 Dragonflies, and AC-130 gunships proved especially effective against NVA troops and AFVs, while heavier US aircraft struck logistical targets throughout the area of the offensive and throughout North Vietnam. B-52 three-aircraft "Arc Light" cells were repeatedly called in to strike NVA troops massing for attacks, and proved devastating. (Getty)

Tactically, the NVA struggled with combined arms operations. Hanoi had rushed to refine a new combined arms doctrine for its troops and issued manuals, but NVA units lacked the time to fully absorb and train in the new techniques. As a result, North Vietnamese attacks repeatedly failed to effectively integrate artillery, armor, and infantry. At An Loc and Kontum, NVA tanks lost their accompanying infantry support but plunged blindly into difficult urban terrain where, with hatches closed, they were hunted down and destroyed by ARVN LAW antitank teams.

TECHNICAL LESSONS

Tank against tank

ARVN Pattons were able to fulfill the vision of Western tank designers by hitting and destroying their rivals with long-range gunnery. On April 2, lead elements of the recently formed ARVN 20th Tank Regiment, fresh from gunnery training, rushed north to the Dong Ha area and began to engage enemy tanks moving in column formation towards the river. The unit's US advisor, Major James Smock, reported that six T-54s were knocked out at a range of 2,500–3,200 meters, and intercepted radio communications revealed that the NVA commander could not even identify the source of the fire destroying his tanks. South Vietnamese A-1 Skyraider aircraft were able to engage and destroy nine or more additional tanks, although one A-1 was lost to NVA antiaircraft fire.

The 20th held positions defending the river line near Dong Ha and the flank to the west for the next several weeks, and the M48A3's xenon searchlights allowed the unit to interdict NVA night movement until they were damaged by the constant enemy mortar and artillery fire. On April 9, M48A3s of the 20th maneuvered to the west to reinforce FSB Pedro and knocked out 16 T-54s at 2,800 meters with long-range gunnery, while more NVA tanks were lost to a combination of mines and airstrikes. In reaction to such losses, NVA commanders were ordered to hold back their tanks until a breach was made in the ARVN lines, and then to strive to engage M48A3s at close range in concert with RPG-7 tank-killing teams. Throughout April, committed to a static defensive role, ARVN tanks steadily took losses to long-range ATGM fire and RPG team ambushes. All the 20th's tanks were ultimately lost from a variety of causes during the chaotic retreat from Quang Tri in late April, but no M48A3s had been disabled by NVA tank fire.

NVA infantry attacking equipped with the iconic AK-47, a light machine gun, and an RPG infantry-carried antitank rocket launcher. NVA Sagger ATGMs were used to pick off ARVN AFVs at long range, while infiltration teams attacked with RPG-2s and RPG-7s at close range. (Getty)

The Arab-Israeli conflict of October 1973 repeated many of the lessons of the Easter Offensive, but on a much larger scale. Western tanks operated by Israeli crews inflicted heavy losses on attacking Syrian and Egyptian tanks at long ranges, just as the 20th ARVN Tank Squadron had when defending Dong Ha. Similarly, Sagger ATGMs and RPG-7s were used to defeat several Israeli tank offensives against the Suez Canal, highlighting the effectiveness of these systems. Unlike the fighting in Vietnam, the October War had a great impact on international perceptions of armored conflict and in particular spurred the US Army to develop its “active defense” doctrine that shaped preparations for conflict in Europe until it was subsequently replaced by the more offensively oriented “airland battle” approach. (Getty)

In short-range engagements, NVA armor more than held its own against its opponents. In the II and III Corps zones, the ARVN lacked M48A3s and had to rely on its M41A3 light tanks, losing several engagements to NVA

tanks. On April 4, in the III Corps area, the ARVN 1st Armored Cavalry Squadron, minus one detached troop, attempted to withdraw from its positions north of An Loc and was caught on the road by NVA T-54s that destroyed the ARVN force in a close-range ambush. Fifty-two vehicles were lost, including 16 M113s and 12 M41A3s, some of which were repaired and used by the NVA in subsequent attacks. In the II Corps area, T-54s and PT-76s overran ARVN defenses at Dak To, destroying eight M41A3s at the cost of one PT-76.

Hanoi received large numbers of AFVs from its Soviet and Chinese communist patrons to replace its heavy losses in 1972. In addition, it received some improved types including the ZSU-23/4 Shilka SPAAG. In 1975, the lack of effective South Vietnamese air activity and US refusal to intervene gave the ZSU-23/4s little opportunity to engage aerial targets. (Author's Collection)

Airpower

US air support was the decisive factor in the South's successful defense in 1972, the majority of NVA losses being due to air attack. Helicopters, gunships, and tactical aircraft provided intensive close support to engaged ARVN troops, directed by embedded US advisors on the ground and tactical air controllers in light aircraft overhead. South Vietnamese Air Force A-1s and A-37s, US helicopters, and AC-119 and AC-130 gunships provided superb direct support against attacking NVA troops and tanks, while other US aircraft struck marshalling areas and, under Operation *Linebacker I*, mined harbors and hit targets throughout the north to sever

the NVA's logistical support network. Three-bomber B-52 "Arc Light" cell strikes proved devastating when called in to hit attacking NVA troops. In the I Corps coastal zone, US naval gunfire support was effective, especially once a heavy cruiser added its 8in guns to the destroyers already on the "gun line."

In 1975, ARVN forces rapidly collapsed after President Thieu ordered a sudden withdrawal from the Central Highlands. Southern units were still able to inflict losses on attacking NVA troops, however, such as these T-54s knocked out in the northern suburbs of Saigon. (Getty)

ATGMs

The Easter Offensive was notable for the large-scale employment of a new type of antitank weapon that would shock the world when used with more publicity in the 1973 Middle East October War. The NVA employed the Malyutka-M ATGM, known in the West as the AT-3 Sagger. The missile was guided with a joystick via a thin wire that paid out and could deliver a HEAT warhead that could penetrate any ARVN tank's armor at long range. The NVA employed their ATGMs as sniper systems to pick off ARVN M48A3s in static defensive systems along the river line at Dong Ha and M41A3s dug into static defenses in the Tan Canh/Dak To II area in the early days of the offensive in the II Corps area. The dynamic US advisor to the ARVN's II Corps, John Paul Vann, insisted the US deploy the experimental TOW ATGM system to help defend Kontum. By the end of the Easter Offensive, helicopter- and jeep-carried TOWs claimed 47 vehicle kills, including 24 tanks. Ten of the latter were T-54s.

RPGs and LAWs

Both sides relied on infantry-carried rocket launchers for close-range engagement of tanks. The NVA's B-40/RPG-2s and B-41/RPG-7s proved effective in both defensive and offensive operations, with small antitank teams infiltrating at night or under cover to get close enough to effectively hit their targets. The NVA augmented RPGs with recoilless rifle fire. The similar M72 disposable US LAW (Light Antitank Weapon) was essential to ARVN defenses in An Loc and Kontum. As their infantry support was stripped away by defensive fire, the NVA tanks, usually with their hatches closed and lacking good situational awareness, repeatedly blundered into the urban areas. ARVN LAW-equipped antitank teams inflicted major losses on these vulnerable targets.

Most photos of NVA forces entering the Saigon Presidential Palace grounds focus on T-54s, but Type 63 light tanks were also present. The tanks flew Viet Cong rather than North Vietnamese flags in an attempt to portray their conventional invasion as a revolution by southern communist forces. (Getty)

NVA tanks photographed after smashing through the fences and occupying the Presidential Palace grounds on April 30, 1975. A conflict characterized by years of guerilla warfare had been ultimately decided by a massive tank-led conventional offensive. (Getty)

The tanks of the Easter Offensive soldiered on in conflicts for the next several decades. Here, M48s, much resembling those that fought at Dong Ha in 1972, are employed by Lebanese government forces to engage Islamic militants at a refugee camp in 2007. (Getty)

THE AFTERMATH: VIETNAM, 1973–75

Hanoi rebuilt its forces after 1972. Its communist patrons sent large numbers of AFVs, including new types such as the ZSU-23/4 radar-equipped SPAAG. Additional K-63 AFVs from China allowed improved mechanized infantry support for attacking tank units. The NVA order of battle expanded to a total of nine armored regiments, with the 215th, 240th, 273rd, 408th, and 574th added to the force. The 202nd and 203rd regiments were upgraded to brigade status, and the total order of battle expanded from 16 to 29 tank battalions. NVA units were fully drilled in proper combined arms attacks, and the force trained for "sudden assault" – what in the West would be considered a rapid attack from the march – and "deep advance" exploitation tactics. The NVA formed its combined arms forces into new strategic army corps, each with several infantry and one AA division, supported by an artillery and armor brigade.

Saigon received enough AFVs to rebuild its armored force and fill out all three M48A3 tank squadrons, but US support waned after 1972. Artillery and tank ammunition stockpiles dwindled, limiting the ARVN's ability to train and meet NVA probes. Despite Washington's assurances during the 1972–73 ceasefire negotiations, there was now little prospect of a massive US intervention to support Saigon if the North attacked. Hanoi planned for a decisive offensive in 1976, but successes against the ARVN at Ban Me Thuot in early 1975 led President Thieu to order a sudden and, as it turned out, disastrous retreat from the entire central II Corps portion of South Vietnam. The reformed NVA was able to rapidly pursue, and the ARVN dissolved in the chaotic retreat and evacuations. After a total of only 55 days of fighting, NVA tanks smashed the gates guarding the Presidential Palace in Saigon on April 30.

Libya retained large amounts of Soviet Cold War-era equipment that was employed in the civil wars that erupted in 2011. Here, a T-54 is being used by Libyan Government of National Accord forces in 2016 against Islamic State forces in the coastal city of Sirte. (Getty)

FURTHER READING

The primary source on the 1972 fighting is Lieutenant General Ngo Quang Truong's *The Easter Offensive of 1972*, one of the Indochina monographs written by Vietnamese officers produced by the US Army Center for Military History after the fall of Saigon. *America's Last Vietnam Battle* by Dale Andrade provides an overview of the campaign, with a particular focus on US advisors and their activities. US Marine Colonel G. H. Turley's *The Easter Offensive* discusses his own perspective as he was thrust into the role of senior advisor in the I Corps area in the chaos of the early days of the offensive.

James H. Willbanks addresses the entire 1969–75 timeframe in his book *Abandoning Vietnam: How America Left and South Vietnam Lost Its War* and includes a detailed analysis of the Easter Offensive. Most one-volume overviews of the war contain some discussion of the Easter Offensive, and one of the most useful is in Phillip Davidson's *Vietnam at War: The History 1946–1975.* The primary North Vietnamese account available in English is in *Victory in Vietnam: The Official History of the People's Army of Vietnam, 1954–1975*, translated by Merle L. Pribbenow.

Essential for any study of armored forces in Vietnam, and in particular operations during 1972–75, are several books authored by Albert Grandolini. His two volumes on the Easter Offensive – *Invasion Across the DMZ* (2015) and *Tanks in the Streets* – address the fighting in the I and II/III Corps zones, respectively.

Superb primary source material on the Vietnam conflict is available at the Texas Technical University's Vietnam Center online archive (**www.vietnam.ttu.edu**). Particularly useful to this study were a variety of articles and reports by US advisors to the ARVN armored force, especially Major James Smock and Colonel Raymond Battreall, the MACV History Branch reports on 1972 operations, and Project CHECO studies on the use of airpower.

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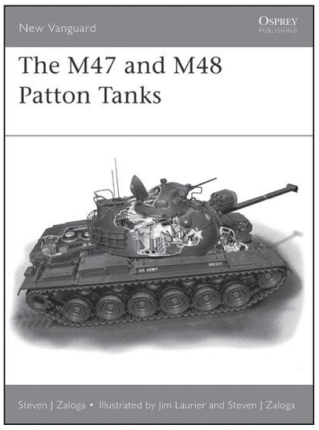
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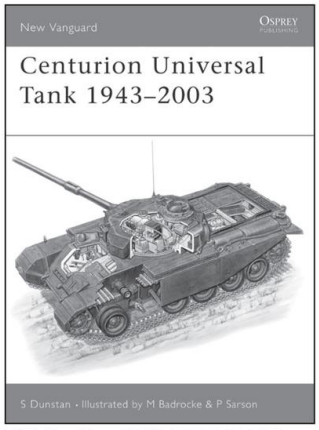

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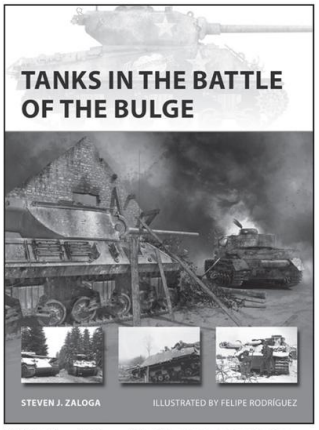

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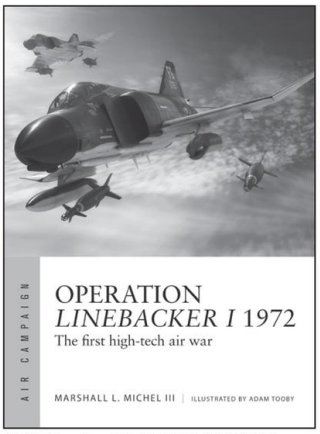

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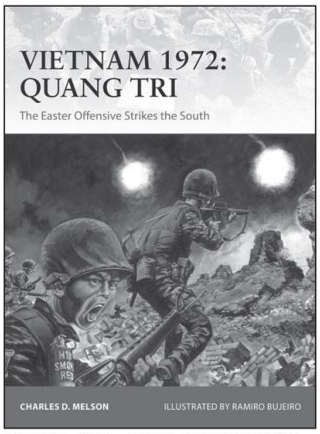

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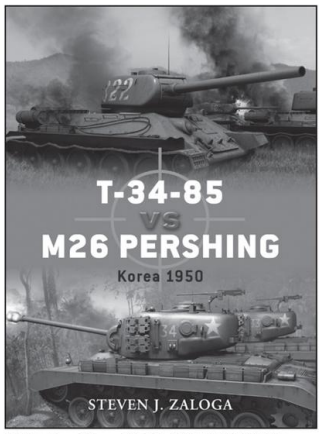

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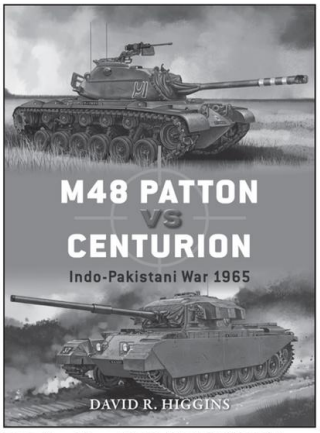

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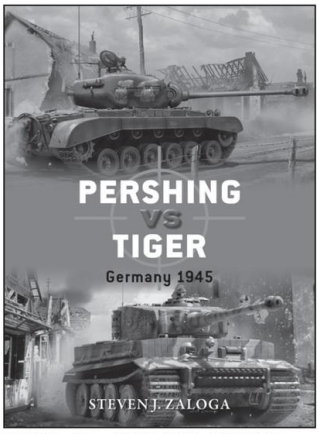

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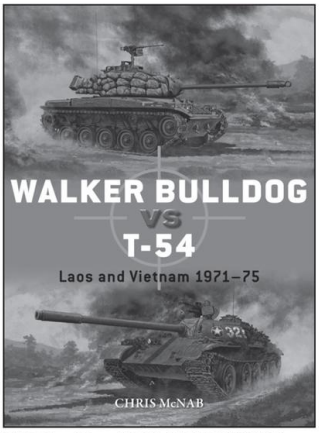

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Glossary

AFV	Armored Fighting Vehicle
AP	Armor Piercing
APC	Armored Personnel Carrier
ARVN	Army of the Republic of Vietnam (southern forces)
AT	Antitank
ATGM	Antitank wire Guided Missile
FSB	Fire Support Base
HE	High Explosive
HEAT	High Explosive Antitank
NVA	North Vietnamese Army
RL	Antitank Rocket Launcher
SPAAG	Self-propelled Antiaircraft Gun
VC	Viet Cong